Complete Summary

TITLE

Carotid endarterectomy (CEA): volume.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

Brief Abstract

DESCRIPTION

This measure assesses the raw volume of provider-level carotid endarterectomy (CEA) (surgical procedure).

As a volume indicator, CEA is a proxy measure for quality and should be used with other indicators.

RATIONALE

Carotid endarterectomy (CEA) is a fairly common procedure that requires proficiency with the use of complex equipment; and technical errors may lead to clinically significant complications, such as abrupt carotid occlusion with or without stroke, myocardial infarction, and death. Higher volumes have been associated with better outcomes (e.g., lower mortality and post-operative stroke rates), which represent better quality.

PRIMARY CLINICAL COMPONENT

Carotid endarterectomy; procedure volume

DENOMINATOR DESCRIPTION

This measure applies to providers of carotid endarterectomy (CEA) (one provider at a time).

NUMERATOR DESCRIPTION

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes* of 3812 in any procedure field. Exclude Major

Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

*Refer to Appendix A of the original measure documentation for details.

Evidence Supporting the Measure

PRIMARY MEASURE DOMAIN

Structure

SECONDARY MEASURE DOMAIN

Outcome

EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Wide variation in capacity

EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

External oversight/State government program
Internal quality improvement
Quality of care research

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Does not apply to structure measures

TARGET POPULATION GENDER

Does not apply to structure measures

STRATIFICATION BY VULNERABLE POPULATIONS

Does not apply to structure measures

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Approximately 144,000 carotid endarterectomies (CEAs) were performed in the United States in 1997.

EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Does not apply to structure measures

DENOMINATOR SAMPLING FRAME

Does not apply to structure measures

DENOMINATOR (INDEX) EVENT

Does not apply to structure measures

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
This measure applies to providers of carotid endarterectomy (CEA) (one provider at a time).

Exclusions
Unspecified

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes* of 3812 in any procedure field.

*Refer to Appendix A of the original measure documentation for details.

Exclusions
Exclude Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

DENOMINATOR TIME WINDOW

Does not apply to structure measures

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Does not apply to structure measures

OUTCOME TYPE

Proxy for Outcome

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Count

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Does not apply to structure measures

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison
Prescriptive standard

PRESCRIPTIVE STANDARD

Benchmark:

- Threshold 1: 50 or more procedures per year
- Threshold 2: 101 or more procedures per year

EVIDENCE FOR PRESCRIPTIVE STANDARD

Hannan EL, Popp AJ, Tranmer B, Fuestel P, Waldman J, Shah D. Relationship between provider volume and mortality for carotid endarterectomies in New York state. Stroke1998 Nov;29(11):2292-7.

Manheim LM, Sohn MW, Feinglass J, Ujiki M, Parker MA, Pearce WH. Hospital vascular surgery volume and procedure mortality rates in California, 1982-1994. J Vasc Surg1998 Jul;28(1):45-56; discussion 56-8.

Nationwide inpatient sample and state inpatient databases. Healthcare Cost and Utilization Project (HCUP). [database]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 1995-1997.[Various pagings].

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

Identifying Information

ORIGINAL TITLE

Carotid endarterectomy volume (IQI 7).

MEASURE COLLECTION

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

MEASURE SET NAME

Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators

DEVELOPER

Agency for Healthcare Research and Quality

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2002 Jun

REVISION DATE

2004 Jul

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

MEASURE AVAILABILITY

The individual measure, "Carotid Endarterectomy Volume (IQI 7)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization." An update of this document is available in Portable Document Format (PDF) and a zipped WordPerfect(R) file from the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- "AHRQ Inpatient Quality Indicators Software (Version 2.1 Revision 3)" (Rockville, [MD]: AHRQ, 2004 Jul 21) and its accompanying documentation can be downloaded from the Agency for Healthcare Research and Quality (AHRQ) Web site. (The software is available in SPSS- and SAS-compatible formats.)
- Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the AHRQ Web site.
- "AHRQ Inpatient Quality Indicators - Interpretative Guide" (Irving [TX]: Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p.) is available. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available from the AHRQ Web site.
- "Refinement of the HCUP Quality Indicators" (Rockville [MD]: AHRQ, 2001 May. Various pagings. [Technical review; no. 4]; AHRQ Publication No. 01-0035) is available. This document was prepared by the UCSF-Stanford Evidence-based Practice Center for AHRQ and can be downloaded from the AHRQ Web site.

NQMC STATUS

This NQMC summary was completed by ECRI on August 19, 2004. The information was verified by the measure developer on October 13, 2004.

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